

Work Order ID 152157

Friday, October 21, 2016 8:08:29 AM

152157

Page 1

Item ID: D044-715-011

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: R44 Cargo Mirror

Start Date: 10/21/2016 Start Qty: 4.00

4

Cust Item ID:

Required Date: 10/28/2016 Req'd Qty: 4.00

4

Customer:

Reference:

DAS
21
9-89

Date: OCT 21 2016

Tooling:

Date:

Run Start

NR1

Approvals:

Process Plan:

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D3243

Rev A

IIN-D044-715

Rev A

DAS
6
9-89

OCT 21 2016

DAS
21
9-89

16-10-21 (4)

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPPD044-715-011

CHG003

4

DAS
28
9-89

OCT 24 2016

110

Pick Kit

0.00

110

Packaging

Memo

0.00

Packaging

4

DAS
6
9-89DAS
27
9-89

OCT 21 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER :							

Work Order ID 152157

Friday, October 21, 2016 8:08:29 AM

152157

Page 2

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N900040100

Setup Start

NS1

Revision ID:

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NS2

Item Name: R44 Cargo Mirror

Start Date: 10/21/2016 Start Qty: 4.00

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Required Date: 10/28/2016 Req'd Qty: 4.00

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Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

120

QC4- 100% Inspect kits for completeness

0.01

120

QC

Memo

0.00

Quality Control

4

DAS
28
9-89

OCT 24 2016

130

Packaging

0.00

130

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D044-715-011
LOCATION: FG011

4

DAS
28
9-89DAS
27
9-89

OCT 24 2016

140

QC21- Final Inspection - Work Order Release

0.02

140

QC

Memo

0.07

Quality Control

DAS
21
9-89

OCT 24 2016

DAS
21
9-89

OCT 24 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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OTHER : _____					

Picklist Print

Friday, October 21, 2016 8:08:31 AM

Page 1

Work Order ID: 152157

152157

Parent Item: D044-715-011

D044-715-011

Parent Item Name: R44 Cargo Mirror

Start Date: 10/21/2016

Required Date: 10/28/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP Rev:A04.02.18New issueKJ/JLM
IPP Rev:B 06-04-28 Manufactured on Water Jet JLM
IPP Rev:C 08-06-10 as per ECN1195p DD verified by:EC IPP Rev:D
11.05.04 remove FE-032-EF DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3243-041 Bracket		Manufactured	No			110	Each	6.0000	1	4			
D3243-041									**			OCT 21 2016	DAS 6 9-89 DAS 27 9-89
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				ST486				6					
				148341				6					
D1048 Clamp		Manufactured	No			110	Each	25.0000	2	8			
D1048									**			OCT 21 2016	DAS 6 9-89 DAS 27 9-89
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				GA				25					
				148042				1					
				148270				24					
D1049 Saddle		Manufactured	No			110	Each	12.0000	2	8			
D1049									**			OCT 21 2016	DAS 6 9-89 DAS 27 9-89
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				GA				12					
				148238				12					
D2010-104 ARM		Manufactured	No			110	Each	0.0000	1	4			
D2010-104									**			148247 OCT 21 2016	DAS 6 9-89 DAS 27 9-89
				<u>Location</u>				<u>Loc Qty</u>		<u>Loc Code</u>			
				GA				12					
				148238				12					

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

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Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Description Work Order Deviation				Disposition					
								Completed By 	
								Lead hand / Supervisor Approval Verification 	
QC / QA Coordinator Approval 									

Root Cause				FAULT CATEGORY																																																																																																																											
Environment	☐	Design	☐	Doc/Data	☐	Equip/Tooling	☐	Handling/Pre	☐	Material	☐	Internal Transport	☐	Tribal Knowledge	☐	LOA	☐	Substation	☐	Past Expiry Date	☐	Misidentified	☐	No Re-verification	☐	Operator	☐	Offset/Setup	☐	Supplier	☐	Training	☐	Use for Testing	☐	Poor Information	☐	Rushing	☐	Product Improvement	☐	Process Improvement	☐	Manufacturing Process	☐	Past Due	☐	Pressure/Forced	☐	Bending	☐	Centre Not Concentric	☐	Cracks	☐	Crimp/Kink/Ripple/Wave	☐	Cuffs	☐	Crushing	☐	Heat Treat	☐	Wave/Twist in Tube	☐	Marks/Chatter	☐	Temperature/Cure	☐	Set-up	☐	BOM/Route	☐	Broken/Damage/Defect	☐	Inspection Incomplete/Unqualified	☐	Contamination	☐	Countersink	☐	Cut Too Short	☐	Instructions Incomplete/Unclear	☐	Drill Holes	☐	Power Loss/Surge	☐	Folio/Program	☐	Grain	☐	Weld	☐	Wrong Stock Pulled	☐	Out of Sequence	☐	Off-set	☐	Mislabeled	☐	Fit/Function	☐	Misaligned/off center	☐	Positioned Wrong	☐	Outside Dimensions	☐	Over/Under tolerance	☐	Part Incorrect	☐	Part Lost/Missing	☐	Part Moved	☐	Drawing	☐	Finish	☐	Misread	☐	Turning Sequence	☐
OTHER : _____																																																																																																																															

Picklist Print

Friday, October 21, 2016 8:08:31 AM

Page 2

Work Order ID: 152157

152157

Parent Item: D044-715-011

D044-715-011

Parent Item Name: R44 Cargo Mirror

Start Date: 10/21/2016

Required Date: 10/28/2016

Start Qty: 4.00

Required Qty: 4.00

D2011-101

Manufactured No

110 Each

26.0000

1 4

D2011-101

Mirror 6"

DAS
28
9-89

Location

Loc Qty

Loc Code

FG

2

106348

2

ST368

12

146270

1

148838

11

ST384

12

151295

12

OCT 21 2016

DAS 6 27 9-89

AN3-4A

Purchased No

110 Each

298.0000

4 16

AN3-4A

Bolt

DAS
28
9-89

Location

Loc Qty

Loc Code

over003

250

m135704

250

ST350

48

m134955

48

OCT 21 2016

DAS 6 27 9-89

AN526C1032R10

Purchased No

110 Each

90.0000

4 16

AN526C1032R10

Screw

DAS
28
9-89

Location

Loc Qty

Loc Code

ST326

90

m135133

90

OCT 21 2016

DAS 6 27 9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Picklist Print

Friday, October 21, 2016 8:08:31 AM

Page 3

Work Order ID: 152157

152157

Parent Item: D044-715-011

D044-715-011

Parent Item Name: R44 Cargo Mirror

Start Date: 10/21/2016

Required Date: 10/28/2016

Start Qty: 4.00

Required Qty: 4.00

ALS4-1032-130 AELS4-1032-130 Purchased

No

110

Each

4,917.000

4

16

ALS4-1032-130

Rivnut

DAS
28
9-89

**

DAS
6
9-89

OCT 21 2016
DAS
27
9-89

Location

Loc Qty

Loc Code

CCK004

2364

M135442

2364

FG

50

FG

M135442

50

FP001

2111

M133077

122

M134502

19

~~M135442~~

1970

ST556

392

M135442

392

NAS1149D0332J

Purchased

No

110

Each

1,326.000

4

16

NAS1149D0332J

Washer

DAS
28
9-89

**

DAS
6
9-89

OCT 21 2016
DAS
27
9-89

Location

Loc Qty

Loc Code

FP001

192

m134848

192

GA

222

m134848

222

ST260a

600

m135672

600

ST264

312

m129682

6

m130325

204

m135536

31

m135566

71

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



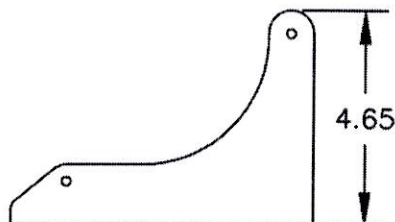
QA Closed: _____ Date: _____

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Date : 8		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					



DESIGN <i>CP</i>	DRAWN BY <i>CP</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>[Signature]</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D3243	REV. A SHEET 1 OF 1
DATE 04.01.09		TITLE BRACKET	SCALE 1:2
A	04.01.09	NEW ISSUE	



R0.188 (TYP)



D3243-1 BEND DETAIL/
D3243-041 ASSEMBLY
SCALE 1:4

INSTALL
FE-032-EF INSERTS
(4 PLACES)

2.75 ± 0.030
0.000

NO. 152157 MCS
1610021
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

RELEASED
04.02.03

8.581
8.206
7.706

GRAIN
DIRECTION

11.920
11.420
 $\phi 0.201$
(TYP 4
PLACES)

$\phi 0.290$
(TYP 4
PLACES)

1.375
5.273

4.214

R0.25 (TYP)

3.339

R0.38
(TYP)

5.494

R2.75
(TYP)

3.714

D3243-1
FLAT PATTERN

R0.50
(TYP)

0.500
0.000

6.560
5.810
5.360

0.750
0.500
0.000

**D3243-041 BRACKET ASSEMBLY
(D3243-1 BRACKET)**

- 1) MATERIAL: 6061-T6, 0.063 THICK
(QQ-A-250/11, REF DART SPEC
M6061T6S.063)
- 2) FINISH: CHEMICAL CONVERSION COAT
PER DART QSI 005 4.1
POWDER COAT BLACK (4.3.5.7) PER
DART QSI 005 4.3
- 3) BREAK ALL SHARP EDGES 0.005 TO
0.010
- 4) ALL DIMENSIONS ARE IN INCHES
- 5) TOLERANCES ARE PER DART QSI 018
UNLESS OTHERWISE NOTED

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WORK ORDER NON-CONFORMANCE / UPDATE



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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																											
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Misidentified ☐	Past Due ☐																																																														

Friday, October 21, 2016 9:23:47 AM

Page 1

Setup Start *NS1*

Stop *NS2*

Customer:

Run Start *NR1*

Stop *NR2*

Draw Nbr	Revision Nbr	Stamp
D3243	Rev A	
IIN-D044-715	Rev A	DAS 21 OCT 21 2016 DAS 21

DAS
21
9-89 OCT 21 2016

9-89 4 OCT 21 2016

Packaging

2. GENERAL NOTES

COMPATIBILITY

Compatibility of this installation with the aircraft is the **responsibility of the installer**. Ensure that this installation does not conflict with a previous modification.

CONTINUING AIRWORTHINESS

This installation should be maintained in accordance with the Instructions for Continued Airworthiness **ICA-D044-715**.

3. INSTALLATION INSTRUCTIONS

To install the Dart Cargo Mirror Installation on the R44 skidtube:

1. Locate the D3243-041 Bracket with approximately 0.38" (10mm) space between the top of the skidtube and the bracket, as shown in Figure 2. Transfer drill the 4 holes from the bracket to the centerline of skidtube and enlarge to 10/64" (Ø0.297"). Deburr holes and wet install ALS7-1032-130 inserts using MIL-P-85582 or MIL-P-23377 primer.
2. Install the D3243-041 Bracket on the skidtube using the AN3 hardware. The bolts should be sealed with Sikaflex-241/-291 or Proseal 890 or MIL-S-8802 Class 'B2' sealant before installing as per Figure 2.
3. Install remaining hardware per Figure 2 as required. Adjust the angle of the D2010-104 Arm and tighten the AN526C1032R10 screws to secure arm.
4. To adjust the mirror: loosen (DO NOT REMOVE) the three adjustment screws shown in Figure 2, reposition the mirror, then tighten the screws.

4. WEIGHT AND BALANCE

Installation	Weight	LATERAL		LONGITUDINAL	
		Arm	Moment	Arm	Moment
D044-715-011 Cargo Mirror Installation	1.3 lb 0.59 kg	41.7 in 1.06 m	54.2 lb-kG 0.63 m-kG	32.0 in 0.81 m	41.6 in-lb 0.48 m-kG

5. PARTS LIST

Qty	Part Number	Description
X	D044-715-011	CARGO MIRROR INSTALLATION
2	D1048	Clamp
2	D1049	Saddle
1	D2010-104	Arm
1	D2011-101	Mirror
1	*D3014-1	Locknut
1	D3243-041	Bracket
4	ALS7-1032-130	Insert (or AKS7-1032-130, AKS4-1032-130, ALS4-1032-130)
4	AN3-4A	Bolt
4	AN526C1032R10	Screw (or AN526-1032R10)
4	AN960JD10L	Washers
1	*AN960JD416L	Washer

* PARTS ARE INCLUDED WITH D2011-101 MIRROR